

Grevillea victoriae subsp. *brindabella* (Proteaceae), a new subspecies from the Southern Tablelands of New South Wales

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Abstract

Grevillea victoriae F.Muell. subsp. *brindabella* Stajsic subsp. nov. is described as new. Apparently confined to the northern part of the Brindabella Range, Southern Tablelands, New South Wales, the known range of the subspecies is 10 km (between Waterfall Creek Falls and Genges Trig). Its ecology and conservation status are discussed. Taxonomic relationships with other subspecies of *G. victoriae* are considered.

Keywords: Proteaceae, taxonomy, Australia.

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Introduction

Continuing studies in the *Grevillea victoriae* F.Muell. complex have revealed the presence of a new taxon in the Southern Tablelands of New South Wales. Although the works of Makinson (2000), Molyneux and Stajsic (2000), and Stajsic and Molyneux (2006) have resolved most of the taxonomic problems in the *G. victoriae* complex, the group continues to present some seemingly intractable problems (e.g. the polymorphic *G. oxyantha* Makinson). Stajsic and Molyneux (2006) alluded to the presence of further unnamed taxa within the complex, one of them being represented by three populations from the northern part of the Brindabella Range.

Makinson (2000) commented that the 'Baldy Range' entity is closely related to (if not part of) *G. victoriae* subsp. *nivalis* Stajsic & Molyneux. The Australian Plant Census (accessed August 2009) follows the Makinson view, and lists *Grevillea* aff. *victoriae* 'Baldy Range' sensu Makinson (2000)/*Grevillea* aff. *victoriae* M. Richardson 9 (CBG8601975) sensu Makinson (2000) as part of *Grevillea victoriae* subsp. *nivalis*.

Stajsic and Molyneux (2006) acknowledged the similarity between the 'Baldy Range' population and *G. victoriae* subsp. *nivalis* but thought at the time, based on preliminary observations, that it was sufficiently different to constitute a separate species. Subsequent scrutiny of the 'Baldy Range' taxon confirms that it shares characters of both subspecies *victoriae* and *nivalis*, but that it cannot be accommodated into either. It is described here as a new subspecies. The degree of difference between the new taxon and the currently recognised subspecies of *G. victoriae* is more or less equivalent.

Materials and methods

Forty-three herbarium specimens from MEL and NSW were examined and measured, including spirit material held at MEL. Where possible, at least

five plants per site were sampled. A total of 3–5 flowers and 10 leaves per herbarium specimen were measured. Measurements of floral characters are based on both live material held in the living collections at the Royal Botanic Gardens Melbourne, and rehydrated flowers from herbarium specimens. Spirit-preserved specimens were not employed for morphometric measurements as they become inflated due to absorption of liquid, although they were used for qualitative data such as the shape of the pollen-presenter in cross-section. The colour of vegetative and floral parts is based on live material. Supplementary observations and measurements were made from the living collections held at the Royal Botanic Gardens Melbourne. The images were taken using an Olympus SZX16 dissecting microscope and the Olympus DP71 digital camera. Distribution maps were generated using ArcGIS 9.1. Descriptive terminology follows McGillivray and Makinson (1993), and Makinson (2000), except for a few terms that are outlined in Stajsic and Molyneux (2006). Conservation codes are assigned according to both ROTAP (Briggs & Leigh 1996) and IUCN (2001) criteria.

Taxonomy

Grevillea victoriae F. Muell. subsp. *brindabella* Stajsic, subsp. nov.

A subsp. *victoriae* foliis supra paginis nitentibus minoribus relative latioribus, rachibus inflorescentiarum brevioribus ed indumento perianthii subsericeo differt; a subsp. *navalis* indumento ramuli sericeo vel subsericeo, foliis paginis non reticulatis, indumento infero paginae sericeo concinno differt; ab *ambabo* floribus minoribus, indumento perianthii subsericeo differt.

Grevillea aff. *victoriae* 'Baldy Range' sensu Makinson (2000)

Grevillea aff. *victoriae* M. Richardson 9 (CBG8601975) sensu Makinson (2000)

(n.b. Makinson (2000) gave the above two phrase names as possible alternative names for the same taxon, and not for two different taxa.)

Type: New South Wales, Southern Tablelands, (ca. 200 metres N from the ACT border), Brindabella Range, immediately to the W of Genges Trig. 27.ix.2002, V. Stajsic 3016 & R.G. Coveny, A.E. Orme (holotype: MEL 2237187–2237188!; isotypes: CANB!, NSW!) (Fig. 1).

Spreading to erect *shrub* to 1.2–2.5 m high, 1–4(–6 m) across. *Branchlets* terete to subterete, angular or biconvex in cross-section, with several longitudinal ridges; densely sericeous, or occasionally \pm subsericeous, the indumentum of biramous non-glandular hairs, epidermis not visible, straight, silvery-white and/or with scattered irregularly aligned, appressed or slightly ascending ferruginous and tan hairs. *New growth* ferruginous soon becoming wholly green, or green suffused with purplish-pink or salmon-pink, soon becoming wholly green. *Leaves* ascending (towards apex of branchlets), petiolate, simple, entire, usually narrowly to broadly lanceolate, occasionally ovate or elliptic, sometimes on the same plant, (20–)40–60(–85) mm long, (5–)12–18(–32) mm wide, the lamina flat to broadly U-shaped or V-shaped in cross-section, can be variable on the same plant, (apex usually acute with a short blunt mucro or occasionally obtuse), *margins* very narrowly recurved; leaf length to width ratio (2.0:1–)2.5:1–3.5:1(–4.0:1); *leaf upper surface* minutely foveolate, glabrous or sericeous just above petiole, the indumentum of biramous non-glandular, silvery-white hairs, with or without occasional irregularly aligned tan or ferruginous overlying hairs, the leaf lamina usually distinctly glossy, mid green or dark green; *lateral veins* usually evident to conspicuous, *reticulum* absent; *leaf lower surface* densely sericeous or subsericeous (as for branchlets); *lateral veins* obscure or evident, *reticulum* absent; *leathery-textured*. *Conflorescence* terminal or axillary, decurved, pedunculate, simple to twice-branched, 50% simple, 32% once-branched, 18% twice-branched; *unit conflorescence* cylindrical or a dome-shaped cluster, acropetal; number of flowers (20–)38–50(–64) per unit conflorescence; *distance between flower pair scars* (post-anthesis) at middle of floral rachis 0.7–2 mm; *primary peduncles* (0–)4–15 mm long, 1.2–1.5 mm wide, indumentum moderately densely sericeous or occasionally \pm subsericeous, of biramous non-glandular hairs, epidermis not visible or partially visible, the indumentum silvery-white or off-white, occasionally with ascending tan and ferruginous hairs, some plants also with minute (0.3–0.5 mm long), patent, colourless, translucent glandular hairs (most readily observed in live material, difficult to observe in dried specimens), overall colour (as in rachises) usually white or off-white, occasionally greenish-white; *floral*

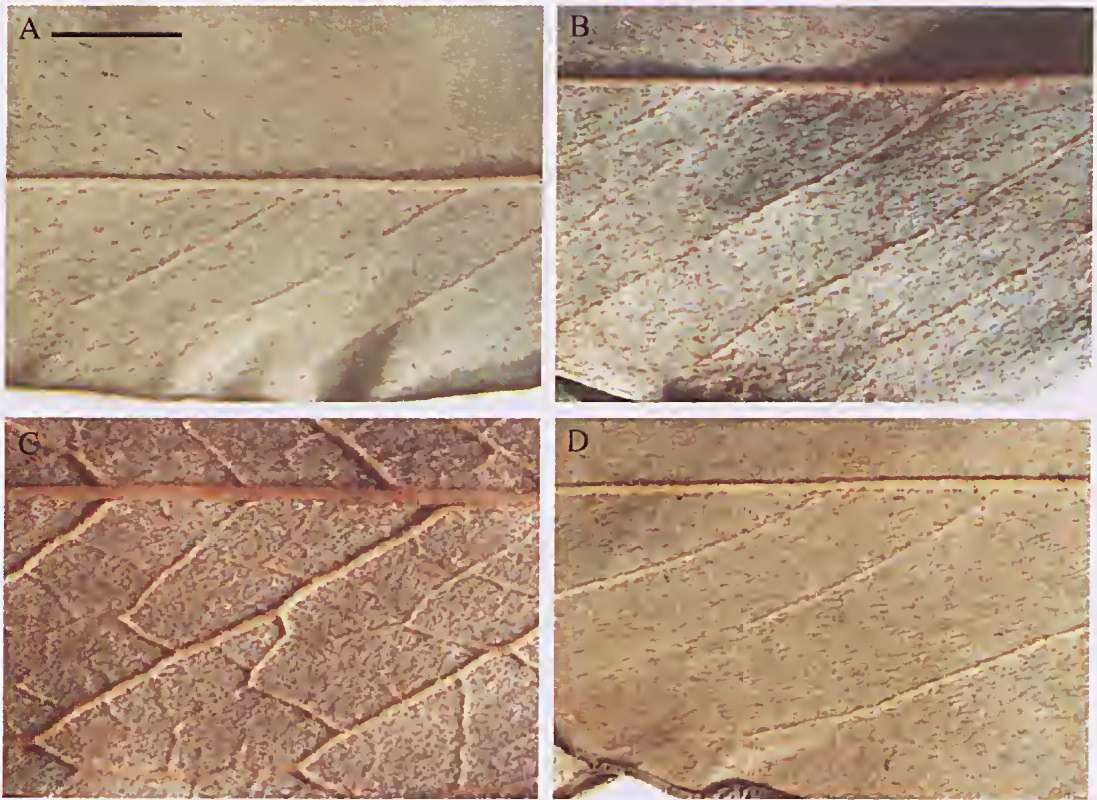


Figure 1. Leaf lower surface venation: A. *Grevillea victoriae* subsp. *brindabella* (VS 2598); B. *G. victoriae* subsp. *brindabella* (VS 2598); C. *G. victoriae* subsp. *nivalis* (B.J. Conn 1441); D. *G. victoriae* subsp. *victoriae* (P.G. Neish 520). Scale bar = 5 mm (mag. 0.7 ×10).

rachises (14–)25–50(–60) mm long, indumentum as for peduncles; *floral bracts* narrowly triangular, 1.5–2.0 mm long, 0.4–0.7 mm wide, crescentic in side-view, basally truncate, apex acute but blunt-tipped, outer surface densely subsericeous of biramous non-glandular hairs, the hairs predominantly silvery-white or off-white, or a mixture of pre dominantly off-white and tan hairs with scattered ferruginous hairs, overall colour silvery-white, or tan, never wholly ferruginous, the inner surface glabrous except near apex, brown or dark brown, bracts persistent until buds 1.2–1.5 mm long; *pedicels* 4–5 mm long, indumentum usually as for perianth below the limb, or with a greater abundance of tan hairs, or indumentum denser, usually eglandular or sometimes with minute (0.3–0.5 mm long) spreading glandular hairs; torus oblique to pedicel at 30–45° angle; *very early flower buds with the perianth below the limb* pale ferruginous, tan or slightly salmon-pink, perianth below the limb maturing to red, limb ferruginous, maturing to light ferruginous, eglandular or some plants also with minute, patent, colourless, translucent glandular hairs

0.5–1.0 mm long; *advanced buds* acroscopic, maturing to ± acroscopic to variably retrorse; *perianth below the limb* squarish with rounded angles in cross-section; *perianth outer surface below the limb* moderately densely subsericeous, of biramous non-glandular hairs, the indumentum predominantly silvery-white with occasional tan hairs, with scattered irregularly aligned silvery-white or ferruginous hairs (in herbarium specimens the indumentum is a mixture of ferruginous off-white and silvery-white hairs), some plants also with minute (0.3–0.5 mm long), patent, colourless, translucent glandular hairs, overall perianth colour red; *perianth inner surface epidermis below the limb* minutely papillate above beard, glabrous except for beard, red or reddish-pink; *perianth limb* round in side-view, squarish face-on, obtuse or slightly subacute, 2.2–2.5 (–3.0) mm across in side-view, limb segments slightly midline-keeled on outer surface, densely subsericeous, of biramous non-glandular hairs, the indumentum predominantly tan and ferruginous, with or without off-white and dark reddish-ferruginous hairs, epidermis

red or reddish-pink; *dorsal tepal beard* commencing 1.5–2.3 mm above toral rim, extending for 4.0–4.5 mm, hairs 1.2–1.5 mm long; *ventral tepal beard* commencing 4.0–5.0 mm above toral rim, extending for 2.0–2.5 mm, hairs 1.0–1.2 mm long; *dorsal tepals* 16–19 mm long, 1.9–2.4 mm wide; *nectary* half-annular, projecting 0.4–0.7 mm above toral rim, margins entire, pale yellow; *pistil* 16–19 mm long; *stipe* 1.5–2.7 mm long, glabrous; *ovary* usually glabrous or in some plants with scattered, patent, simple non-glandular, silvery-white hairs (appear to be present post-anthesis) of variable length to 0.4 mm long, or a mixture of hairs and scabrosities, or with a few longitudinally aligned, appressed, biramous hairs (in Baldy Range Fire Trail population), ovary green or greenish-yellow; *style* exerted from dorsal suture of perianth before release of style-end, bowed, afterwards nearly straight to slightly incurved, with scattered minute spreading simple hairs in the upper 2/3–1/2 of style length, particularly at back of style-end, red or reddish-pink; *pollen presenter* oblique to style, 2.7–3.0 mm long, 2.0–2.4 mm wide; *face of pollen presenter* slightly convex in cross-section, base not concurrent with the style; *stigma* distally off-centre; *follicle* ovoid/ellipsoid, (15–)17–20 mm long, 5–7 mm deep, wall 0.7–1.0 mm thick, glabrous, faintly colliculose-rugulose, with several longitudinal ridges on each side, firmly crustaceous, style persistent. Figs. 1–7.

Specimens examined: NEW SOUTH WALES. Southern Tablelands: 12.6 km from Mountain Creek Road on the Baldy Range Fire Trail, 23.vi.1986, M.M. Richardson 8 & P. Ollerenshaw (CANB; NSW); Brindabella National Park, Above Waterfall Creek Falls, 28.i.2002, V. Stajsic 2597–2601 (CANB, NSW, MEL 2133233–2133365); Cultivated at Bywong Nursey, Bywong. Originally from Brindabella National Park, 12.6 km from Mountain Creek Road on the Baldy Range Fire Trail, ACT, 7.viii.2002, P. Ollerenshaw s.n. (MEL 2180257–2180262); Brindabella National Park, immediately to the W of Genges Trig, 27.ix.2002, V. Stajsic 3014–3020 & R.G. Coveny, A. Orme (AD, CANB, HO, MEL 2237181–2237190, MEL 2239991–2239998, MEL 2240002, NSW).

Distribution: *Grevillea victoriae* subsp. *brindabella* is endemic to the northern part of the Brindabella Range, north of the border between the Australian Capital Territory and New South Wales. It is known from three sites: Baldy Range Fire Trail (where it was first collected), Waterfall Creek Falls and Genges Trig. The greatest distance separating the known populations is between

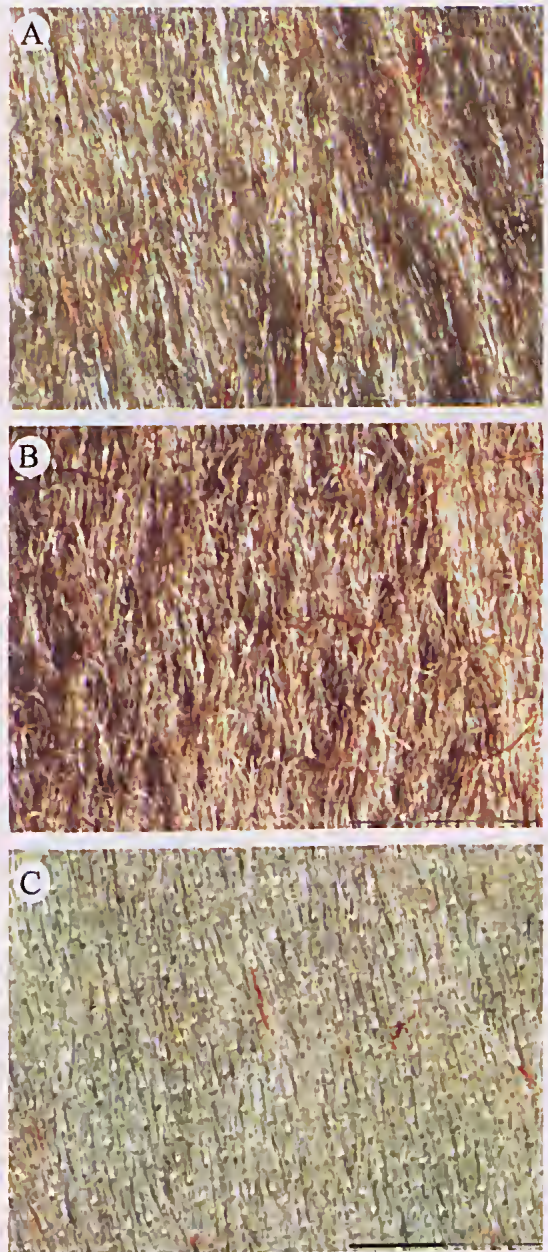


Figure 2. Leaf lower surface indumentum: A. *G. victoriae* subsp. *brindabella* (VS 2598); B. *G. victoriae* subsp. *nivalis* (N.G. Walsh 4890); C. *G. victoriae* subsp. *victoriae* (J.A. Jeanes 2005). Scale bar = 0.5 mm (mag. 5×10)

the Waterfall Creek Falls population and the Genges Trig population, which is ca. 10 km, and the shortest distance is ca. 4.5 km (between the Baldy Range Fire Trail and the Genges Trig populations) (Fig. 2).

Grevillea victoriae subsp. *brindabella* is one of three members of the *G. victoriae* complex that occur in

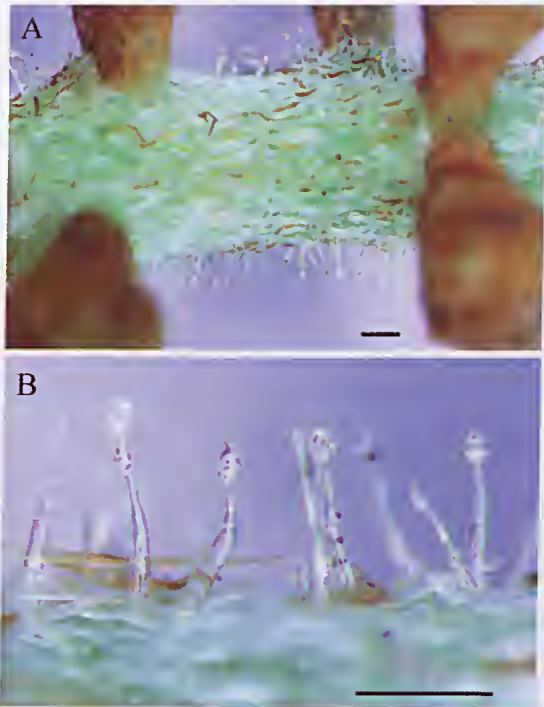


Figure 3. Floral rachis of *G. victoriae* subsp. *brindabella*: showing spreading glandular hairs. Live material, cultivated at Royal Botanic Gardens Melbourne (VS 2599). Scale bar = 0.5 mm (mag. A = 3.2×10 ; B = 11.5×10).

the Brindabella Range, the other being *G. diminuta* L.A.S.Johnson (which also occurs in the Bimberi Range), and *G. oxyantha* Makinson subsp. *oxyantha* (which is more widespread in the Southern Tablelands).

Habitat: *Grevillea victoriae* subsp. *brindabella* grows between 1000 and 1243 metres above sea level. At Waterfall Creek Falls, the plants grow in dry open forest with *Eucalyptus dives* Schauer, *E. mannifera* Mudie, *E. radiata* Sieber ex DC. and *E. rossii* R.T.Baker & H.G.Sm., with an understorey of *Joycea pallida* (R.Br.) H.P.Linder, *Cassinia aculeata* (Labill.) R.Br., *Dodonaea viscosa* (Sm.) J.G.West, *Platylobium* sp., *Hibbertia obtusifolia* DC., *Exocarpus cupressiformis* Labill., *Omphacomeria acerba* (R.Br.) A.DC., *Deyeuxia ?brachyathera* (Stapf) Vickery, *Pomaderris* sp., *Hardenbergia violacea* (Schneev.) Stearn, *Poa sieberiana* Spreng., *Derwentia perfoliata* (R.Br.) Raf., *Stellaria pungens* Brongn. and, *Dianella revoluta* R.Br. The geology at the site appears to include volcanic and sedimentary (sandstone/slate) elements.

At Genges Trig, *G. victoriae* subsp. *brindabella* grows in *Eucalyptus pauciflora* Sieber ex Spreng. woodland, with *E. dives* Schauer just below the summit, on rocky

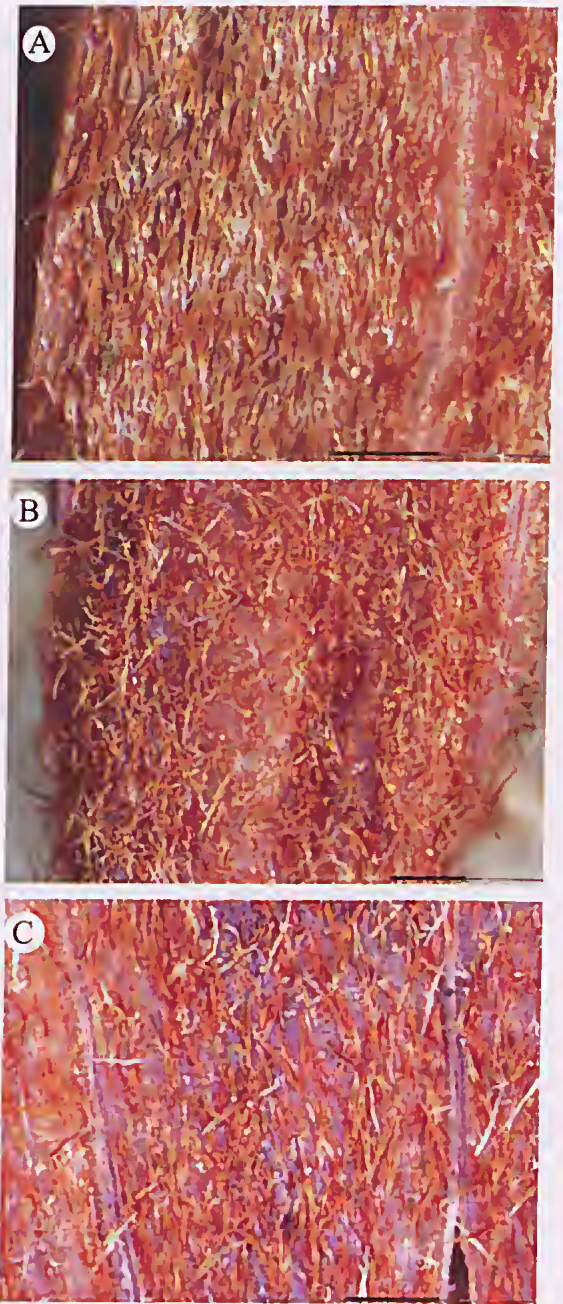


Figure 4. Perianth outer surface indumentum: A. *G. victoriae* subsp. *brindabella* (VS 3017); B. *G. victoriae* subsp. *nivalis* (VS 2520); C. *G. victoriae* subsp. *victoriae* (VS 2141). Scale bar = 0.5 mm (mag. A = 5×10 ; B = 4×10 ; C = 4.5×10).

outcrops, on reddish-brown soil, of sedimentary origin. The understorey consists of *Joycea pallida* (R.Br.) H.P.Linder, *Oxylobium ellipticum* (Vent.) R.Br., *Acrotriche serrulata* R.Br., *Monotoca scoparia* (Sm.) R.Br., *Leucopogon fletcheri* Maiden & Betche, *L. microphyllus*

(Cav.) R.Br. var. *pilibundus* (A.Cunn. ex DC.) Benth., *Hibbertia obtusifolia* DC., *Daviesia leptophylla* A.Cunn. ex Don., *Kunzea* sp., *Exocarpus cupressiformis* Labill., *Cassinia longifolia* R.Br. and *C. aculeata* (Labill.) R.Br. At the Baldy Range Fire Trail it is found on a steep N facing mountain slope, in low open woodland of *Eucalyptus pauciflora* Sieber ex Spreng., with an understorey of *Kunzea* sp., on volcanic geology.

It is assumed that, as is the case with other members of the complex, vegetative reproduction is unknown, and plants are killed outright by severe fire. Regeneration is therefore probably from seed only.

Conservation Status: *Grevillea victoriae* subsp. *brindabella* is entirely confined to Brindabella National Park. At the type locality there are several hundred adult plants, with occasional seedlings (Stajsic pers. obs. 2002). The type population is the largest known. At Waterfall Creek Falls site there are 50 adult plants. Three separate attempts (December 1996, January 2002 and February 2002) to relocate the Baldy Range Fire Trail population have been made by the author without success. Other attempts to relocate this population have been unsuccessful (Makinson pers. comm. 2002). The collecting notes on *Richardson 8 & Ollerenshaw* (CANB, NSW) indicate that the plants were common at the time of the original collection.

Based on current knowledge the new subspecies should be regarded as Endangered (EN sensu IUCN 2001), or Vulnerable (2Vt sensu Briggs & Leigh 1996). The major potential threat is probably too frequent fires, preventing plants setting fruit and exhausting the soil seed-bank.

Phenology: Flowering has been recorded between August and February, but it is possible that flowering occurs sporadically throughout the year. Nectarivorous birds, in particular honeyeaters of various species, visit the flowers, and it is assumed that the plants are primarily ornithophilous.

Etymology: From the locality Brindabella Range, the centre of known distribution of the subspecies; a name of somewhat obscure meaning. The epithet '*brindabella*' can be construed as either a noun in apposition, or as the ablative indicating the place of origin.

Notes: *Grevillea victoriae* subsp. *brindabella* differs from both subsp. *victoriae* and subsp. *nivalis* in having

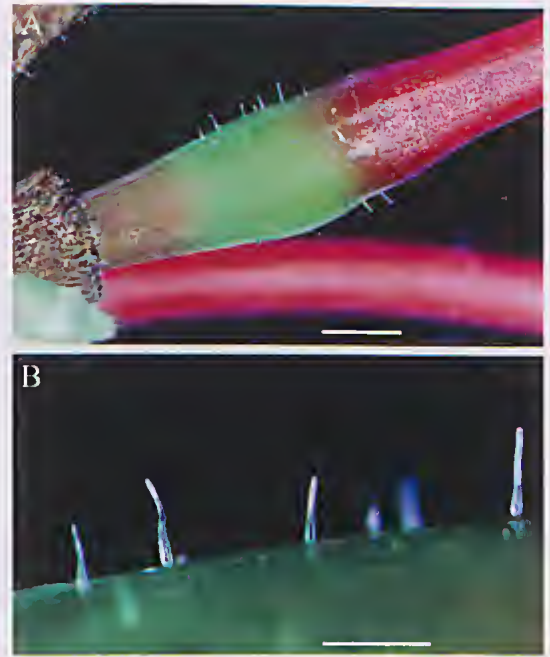


Figure 5. Ovary hairs in *G. victoriae* subsp. *brindabella*. Live material cultivated at Royal Botanic Gardens Melbourne (VS 2599). Scale bar = A. 1.0 mm; B. 0.5 mm (mag. A = 2×10 ; B = 11.5×10).

smaller flowers, the dorsal tepals being 16–19 mm long, whereas in the other two subspecies the dorsal tepals are 18.2–22(–23.5). It also has a smaller perianth limb (this character is related to tepal size), 2.2–2.5(–3) mm across in side-view, compared with 3–4 mm across in side-view in the other two subspecies. Also, while not a strong character the distance between flower pair scars (post-anthesis) at the middle of the floral rachis in subsp. *brindabella* is 0.7–2 mm, compared with (1–)2–3(–4.5) mm in the other two subspecies. Another difference between subsp. *brindabella* and the other two subspecies is the presence of minute glandular hairs on the floral rachis, the pedicels and the perianth outer surface in some plants (see Fig. 3). Unfortunately this is not a constant character, it is found in some plants and absent in other plants within the same population. Apart from *G. rhyolitica* subsp. *semivestita*, no other member of the 'Linearifolia group' (sensu Makinson 2000) is known to possess glandular hairs on the floral rachis. Another interesting character is the presence of hairs on the ovary of some plants within a particular population. At Waterfall Creek Falls the hairs are patent, simple, scattered, and silvery-

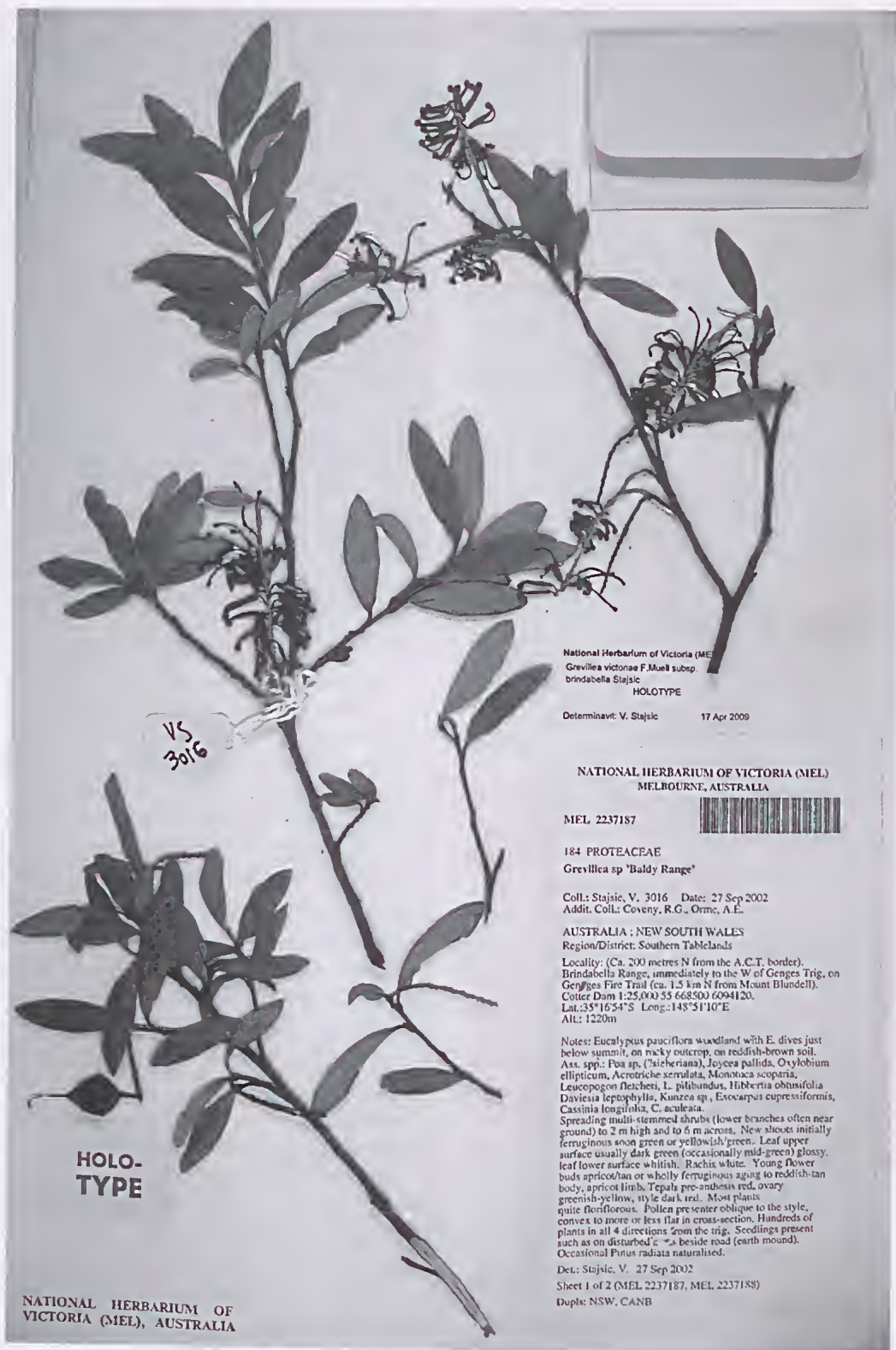


Figure 6. *G. victoriae* subsp. *brindabella* holotype (VS 3016).



Figure 7. *G. victoriae* subsp. *brindabella*. Live material cultivated at Royal Botanic Gardens Melbourne (VS 2599). A. canflarescence; B. flower. Scale bar = 5 mm.

white (see Fig. 4). On the other hand, plants from the Baldy Range Fire Trail population have longitudinally aligned, appressed, scattered biramous hairs. Only one hair type occurs within each population. Hairs on the ovary have not been observed in any other member of the 'Linearifolia group' (Makinson 2000).

Grevillea victoriae subsp. *brindabella* also differs from subsp. *victoriae* in usually having semi-glossy or distinctly glossy leaf upper surfaces (where in subsp. *victoriae*, the leaf upper surfaces are dull), a character

shared with subsp. *nivalis* and *G. brevifolia*. The leaves in subsp. *brindabella* are usually smaller than in subsp. *victoriae*, with a usually lower leaf length to width ratio; and the floral rachises are usually shorter (see Table 1). The colour of very early flower buds in subsp. *brindabella* varies from wholly ferruginous, or the perianth-limb pale-ferruginous and the perianth below the limb more or less salmon-pink (whereas in subsp. *victoriae* the buds are wholly ferruginous, and in subspecies *nivalis* the buds are wholly ferruginous or pale-ferruginous).



Figure 8. Geographic distribution of *G. victoriae* subsp. *brindabella* (squares); *G. victoriae* subsp. *nivalis* (triangles); *G. victoriae* subsp. *victoriae* (circles).

Table 1. A summary of the diagnostic characters for the subspecies of *Grevillea victoriae* and *G. brevifolia*.

Character	Taxon			
	<i>Grevillea victoriae</i> subsp. <i>victoriae</i>	<i>Grevillea victorlae</i> subsp. <i>nivalls</i>	<i>Grevillea victoriae</i> subsp. <i>brindabella</i>	<i>Grevillea brevifolia</i>
Branchlet indumentum	densely subsericeous	densely subsericeous or densely subtomentose	densely sericeous, or occasionally subsericeous	subsericeous to subtomentose
Leaf upper surface venation	lateral veins conspicuous; reticulum obscure or absent; reticulum absent	lateral veins conspicuous to prominent but occasionally variable on the same plant; reticulum usually evident, but varying from obscure to conspicuous on the same plant	lateral veins usually evident to prominent; reticulum absent	lateral veins obscure to evident; reticulum absent
Leaf upper surface glossiness	dull	usually semi-glossy	usually semi-glossy or distinctly glossy	usually semi-glossy
Leaf lower surface venation	lateral veins evident, or occasionally obscure; reticulum absent	lateral veins evident to conspicuous, occasionally prominent; reticulum conspicuous or occasionally prominent, rarely obscure or absent in some leaves	lateral veins obscure to evident; reticulum absent	lateral veins obscure to evident; reticulum absent
Leaf lower surface indumentum	usually densely sericeous or occasionally subsericeous, usually 'tidy'; epidermis not visible	densely subsericeous or subtomentose, usually slightly 'messy'; epidermis not visible	densely sericeous, usually 'tidy'; epidermis not visible	densely sericeous or subsericeous, epidermis not visible
Leaf length × width	(30–)40–120(–200) mm × (8–)10–25(–50) mm	(20–)35–100(–135) mm × (7–)15–37 mm	(20–)40–60(–85) mm × (5–)12–18(–32) mm	(8–)21–38(–49) × 6–16 (–20)
Leaf length:width ratio	(2.85:1–)4:1–5:1(–6:1)	2.25:–4:1(–5:1)	(2:1–)2.5:1–3.5:1(–4:1)	(1.92:1–)2:1–2.5:1(–3.2:1)
Conflorescence branching	simple = 69% 1-branched = 20% 2-branched = 9% 3-branched = 2%	simple = 43.16% 1-branched = 47% 2-branched = 7.84% 3-branched = 2 %	simple = 50 % 1-branched = 32% 2-branched = 18 %	simple = 77% 1-branched = 21% 2-branched = 2 %
Number of flowers per unit conflorescence	22–48(–60)	(16–)24–46(–68)	(20–)38–50(–64)	(14–)20–22(–30)
Perianth limb (shortly pre-anthesis) diameter in side-view	3–3.5 mm across	3–4 mm across	2.2–2.5(–3) mm across	2.8–3.2 mm across
Distance between flower pair scars (post anthesis) at middle of floral rachis	2.0–3(–4.5) mm	(1–)2–3(–4) mm	0.7–2 mm	0.7–2 mm

Floral rachis length	(17–)40–90 mm	(8–)10–50(–60) mm	(14–)25–50(–60) mm	(7–)15–20(–35) mm
Primary peduncles length × width	(0–)3–17 × 1.2–1.6 mm	(0–)3.5–13.5 × (–1.0–)1.3–1.5 mm	(0–)4–15 long × 1.2–1.5 mm	(0–)3–7(–11) × (1.0–)1.2–1.4(–1.8) mm
Colour of very early flower buds	wholly ferruginous	wholly ferruginous or pale ferruginous	wholly pale ferruginous, or perianth limb pale ferruginous and perianth below the limb ± salmon-pink	wholly ferruginous
Dorsal tepal length	18.2–22 (–23.5) mm	16–19 mm	17.5–22 mm	
Perianth outer surface indumentum (below the limb)	moderately densely subsericeous, subtomentose or tomentose	moderately densely subtomentose or tomentose	moderately densely subsericeous	moderately densely subtomentose or tomentose
Glandular hairs	always absent	sometimes present	always absent	
Ovary hairs	always absent	sometimes present	always absent	

The perianth outer surface below the limb in subsp. *brindabella* is moderately densely subsericeous, whereas in subsp. *victoriae* it varies from moderately densely subsericeous to subtomentose to tomentose, and in subsp. *nivalis* it varies from moderately densely subtomentose to tomentose (see Fig. 5).

Grevillea victoriae subsp. *brindabella* differs from subsp. *nivalis* in that the branchlet indumentum is sericeous (whereas in subsp. *nivalis* the indumentum is subsericeous or subtomentose); the leaf upper surface reticulum is always absent (whereas in subsp. *nivalis*, the reticulum is obscure to conspicuous); the leaf lower surface lateral veins are obscure to evident, and the reticulum absent (whereas in subsp. *nivalis* the lateral veins are conspicuous to prominent, the reticulum is usually present, and conspicuous or prominent) (see Fig. 6); the leaf lower surface indumentum is sericeous and usually 'tidy', a character shared with subsp. *victoriae*, but not with subsp. *nivalis* which has a subsericeous to subtomentose to tomentose leaf lower surface indumentum (see Fig. 7).

Although of uncertain reliability, it has been observed that some plants in some of the populations of *G. victoriae* subsp. *brindabella* have leaf lamina that tend to be mainly broadly U-shaped or broadly V-shaped in cross-section, but the leaf cross-section can vary on the same plant, and includes leaves that are flat in cross-section. Further fieldwork is required to assess the usefulness of this character in relation to using it as an aid in differentiating between subsp. *brindabella* and the other two subspecies of *G. victoriae* and *G. brevifolia*.

The next most easily confused taxon with *G. victoriae* subsp. *brindabella* is *G. brevifolia*. *G. brevifolia* is distinguished from *G. victoriae* subsp. *brindabella* by its shorter, generally more obtuse leaves. The leaf upper surface lateral veins in *G. brevifolia* are obscure to evident, whereas in *G. victoriae* subsp. *brindabella* they are evident to prominent. The floral rachises are also shorter and fewer-flowered in *G. brevifolia*. The colour of very early flower buds is wholly ferruginous in *G. brevifolia*. The perianth outer surface indumentum (below the limb) is moderately densely subtomentose or tomentose in *G. brevifolia*, whereas in *G. victoriae* subsp. *brindabella* it is moderately densely subsericeous (see Fig. 8 for illustration of fresh material of *G. victoriae* subsp. *brindabella*). The

differences between the three subspecies of *G. victoriae* and *Grevillea brevifolia* are summarised in Table.

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